Innovation: Multiphoton Tomograph for the Detection of Melanoma and Other Skin Diseases

The clinical tomograph *MPTflex*, which was developed by the German university spin-off Jenlab GmbH [1], is a novel skin imaging device that overcomes the poor resolution of skin imaging methods such as ultrasound, optical coherence tomography (OCT) and reflection. By using two-photon technology, the system's high-resolution skin imaging provides marker-free optical biopsies. The award-winning tomograph is a compact system, with a flexible scan head that includes two detectors for simultaneous measurement of autofluorescence and the second-harmonic generation, used mainly for the early detection of melanoma and diagnostics of dermatological disorders. Providing a fast microscopic view into the skin without any surgery, single cancer cells, as well as elastin fibers and nanoparticles can be imaged in vivo, and skin aging can be measured. The *MPTflex* tomograph is based on the two-photon effects predicted by the 1963 German-American Nobel Prize laureate Maria Goeppert-Mayer.

The *MPTflex* received the 2011 Prism Award for Photonics Innovation in January. Co-founded in 1999 by Prof. Dr. Karsten König, Jenlab's primary goals are the development and the establishment of innovative bioinstrumentation based on Femtosecond Laser Technology for biotechnology, cell biology and medicine. More than 2,000 patients have already been investigated at clinics in Irvine, Brisbane, London, Modena, and Berlin. In the U.S., first clinical trials have been conducted at the University of California this year. For more information, please click here [2].

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